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L3: Entry 6 of 6 File: USPT Mar 2, 1999

US-PAT-NO: 5877309
DOCUMENT-IDENTIFIER: US 5877309 A

TITLE: Antisense oligonucleotides against JNK

DATE-ISSUED: March 2, 1999

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McKay; Robert	La Mesa	CA		
Dean; Nicholas M.	Encinitas	CA		

US-CL-CURRENT: 536/24.5; 435/371, 435/375, 435/6, 435/91.1, 536/23.1, 536/24.3

CLAIMS:

What is claimed is:
1. An antisense oligonucleotide consisting of a nucleotide sequence set forth in SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25 or 26, wherein said antisense oligonucleotide inhibits JNK1 expression.
2. An antisense oligonucleotide consisting of a nucleotide sequence set forth in SEQ ID NO: 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 or 41, wherein said antisense oligonucleotide inhibits JNK2 expression.

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L3: Entry 2 of 6 File: USPT Apr 24, 2001

US-PAT-NO: 6221850
DOCUMENT-IDENTIFIER: US 6221850 B1

TITLE: Antisense oligonucleotide compositions and methods for the modulation of JNK proteins

DATE-ISSUED: April 24, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McKay; Robert	La Mesa	CA		
Dean; Nicholas	Olivenhain	CA		
Monia; Brett P.	La Costa	CA		
Nero; Pamela Scott	Oceanside	CA		
Gaarde; William A.	Carlsbad	CA		

US-CL-CURRENT: 514/44; 435/183, 435/194, 435/320.1, 435/325, 435/371, 435/91.1, 536/23.1, 536/24.31, 536/24.5

CLAIMS:

What is claimed is:
1. An oligonucleotide comprising up to 30 nucleotides connected by covalent linkages, wherein said oligonucleotide has a sequence which specifically binds to a 3'-untranslated region, an open reading frame region, or a translation initiation region of a nucleic acid encoding JNK1 protein (SEQ ID NO: 164), a homolog of JNK1 (SEQ ID NO: 165) or an alpha-2 (SEQ ID NO:166), beta-1 (SEQ ID N:167) or beta-2 (SEQ ID NO:168) isoform thereof, and wherein said oligonucleotide modulates the expression of said JNK1 protein, said JNK1 homolog or said isoform thereof.
2. The oligonucleotide of claim 1 further comprising at least one lipophilic moiety which enhances the cellular uptake of said oligonucleotide.
3. An oligonucleotide comprising up to 30 nucleotides connected by covalent linkages, wherein said oligonucleotide has a sequence which specifically binds to a JNK2 homolog (SEQ ID NO:170) or an alpha-1 (SEQ ID NO:171), beta-1 (SEQ ID NO:172) or beta-2 (SEQ ID NO:173) isoform thereof and wherein said oligonucleotide inhibits the expression of said JNK2 protein, said JNK2 homolog or said isoform thereof.
4. An oligonucleotide comprising up to 30 nucleotides connected by covalent linkages, wherein said oligonucleotide has a sequence which specifically binds to a 3'-untranslated region, an open reading frame region, a 5'-untranslated region or a translation initiation region of a nucleic acid encoding a JNK3 protein (SEQ ID NO: 174), a JNK3 homolog (SEQ ID NO: 175 or SEQ ID NO:176) or an alpha-1 (SEQ ID NO:177) or alpha-2 (SEQ ID NO:178) isoform thereof and wherein said oligonucleotide modulates the expression of said JNK3 protein, said JNK3 homolog or said isoform thereof.
5. The oligonucleotide of claim 1, 3 or 4 wherein at least one of said covalent linkages of said oligonucleotide is a modified covalent linkage.
6. The oligonucleotide of claim 1, 3 or 4 wherein at least one of said nucleotides has a modified nucleobase.
7. The oligonucleotide of claim 1, 3 or 4 wherein at least one of said nucleotides has a modified sugar moiety.
8. The oligonucleotide of claim 1, 3 or 4 wherein at least one of said covalent linkages of said oligonucleotide is a modified covalent linkage and at least one of said nucleotides has a modified sugar moiety.

9. The oligonucleotide of claim 1, 3 or 4 having at least two non-contiguous nucleotides having modified sugar moieties.
10. The oligonucleotide of claim 1, 3 or 4 having at least two non-contiguous nucleotides having modified sugar moieties, wherein at least one of said covalent linkages of said oligonucleotide is a modified covalent linkage and at least one of said nucleotides has a modified sugar moiety.
11. A pharmaceutical composition comprising the oligonucleotide of claim 1, 3 or 4 or a bioequivalent thereof, and a pharmaceutically acceptable carrier.
12. The pharmaceutical composition of claim 11, further comprising one or more compounds from the list consisting of a stabilizing agent, a penetration enhancer, a carrier compound and a chemotherapeutic agent.
13. A pharmaceutical composition comprising a plurality of the oligonucleotides of claim 1, 3 or 4 or bioequivalents thereof, and a pharmaceutically acceptable carrier.
14. A method of treating a mouse, rat or human having, suspected of having or prone to having a hyperproliferative disease comprising administering to said mouse, rat or human a prophylactically or therapeutically effective amount of the pharmaceutical composition of claim 11.
15. A method of inhibiting the expression of a JNK protein in cells or tissues comprising contacting said cells or tissues with the oligonucleotide of claim 1, 3 or 4.
16. A method of inhibiting cell cycle progression in cultured cells or the cells of a mouse, rat or human comprising administering to said cells an effective amount of the oligonucleotide of claim 1, 3 or 4.
17. A method of inhibiting, in cultured cells or the cells of a mouse, rat or human, the phosphorylation of a protein phosphorylated by a JNK protein, wherein said method comprises administering to said cells an effective amount of the oligonucleotide of claim 1, 3 or 4.
18. A method of inhibiting, in cultured cells or the cells of a mouse, rat or human, the expression of a cellular protein that promotes one or more metastatic events, wherein said method comprises administering to said cells an effective amount of the oligonucleotide of claim 1, 3 or 4.
19. The oligonucleotide of claim 1, 3 or 4 wherein said JNK protein is that of a mouse, rat or human.
20. The oligonucleotide of claim 6 wherein said modified nucleobase is 5-methylcytosine.
21. A method of inhibiting the growth of a tumor in a mouse, rat or human comprising administering to said mouse, rat or human an effective amount of the pharmaceutical composition of claim 11.
22. A method of inhibiting the growth of a tumor in a mouse, rat or human comprising administering to said mouse, rat or human an effective amount of the pharmaceutical composition of claim 12.
23. An antisense oligonucleotide up to 30 nucleobase in length comprising at least an 8-nucleobase portion of SEQ ID NO:29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40 or 41, wherein said antisense oligonucleotide inhibits JNK2 protein expression.

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L3: Entry 4 of 6 File: USPT Oct 17, 2000

US-PAT-NO: 6133246
DOCUMENT-IDENTIFIER: US 6133246 A

TITLE: Antisense oligonucleotide compositions and methods for the modulation of JNK proteins

DATE-ISSUED: October 17, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
McKay; Robert	San Diego	CA		
Dean; Nicholas	Olivenhain	CA		
Monia; Brett P.	La Costa	CA		
Nero; Pamela S.	Oceanside	CA		
Gaarde; William A.	Carlsbad	CA		

US-CL-CURRENT: 514/44; 435/183, 435/194, 435/325, 435/366, 435/375, 435/6, 536/23.1, 536/24.31, 536/24.5

CLAIMS:

What is claimed is:
1. A method of treating a human having a disease or condition characterized by a reduction in apoptosis comprising administering to a human a prophylactically or therapeutically effective amount of an antisense oligonucleotide comprising from 8 to 30 nucleotides connected by covalent linkages, wherein said oligonucleotide has a sequence that specifically binds to a nucleic acid encoding a human JNK2 protein and decreases the expression of said human JNK2 protein, so that apoptosis is induced.
2. A method of inducing apoptosis in a cell comprising contacting a cell with with an antisense oligonucleotide comprising from 8 to 30 nucleotides connected by covalent linkages, wherein said oligonucleotide has a sequence that specifically binds to a nucleic acid encoding a JNK2 protein and decreases the expression of said JNK2 protein, so that apoptosis is induced.
3. The method of claim 2 wherein the antisense oligonucleotide has a sequence comprising SEQ ID NO: 31.